

# Effect of Obesity on Quality of Life in Indian Adults - Cross Sectional Observational Study

Dr. Shlesha Vaidya

Assistant Professor, SPB Physiotherapy College, Surat, India

Email id: drsmvaidya[at]gmail.com

Running title: Impact of obesity on life

**Abstract:** ***Background:** Obesity is defined as life-long, progressive, life-threatening, costly, genetically-related, multi-factorial disease of excess fat storage with multiple co-morbidities i.e. associated with health problems. Obesity is the most common and costly nutritional problem in India, affecting approximately 35 percent of adults. The aim of the present study is to assess the impact of obesity on quality of life in adult individuals. **Methods:** 205 obese married adult patients (BMI > 29.9 kg/m<sup>2</sup>) from Gujarat state, to whom the following measurement instruments were applied: IWQOL-Lite. **Results:** Obese people have poor quality of life. In present study it was found that BMI was having direct positive relation to QOL as depicted by total score of IWQOL-LITE QUESTIONNAIRE. The most affected part in QOL was physical functioning i.e. 39.86%, while the correlation of BMI with physical functioning(0.75) was most. In females, the physical functioning(37.02%) was most impaired while in male sexual life(57.34%) was most impaired segment of QOL. Males have poorer QOL as compared to female because of obesity in which the most affected area was sexual life(57.34). BMI even highly correlated with self esteem (0.69). Higher the BMI, lower the self esteem. **Conclusions:** BMI has positive correlation with impairment in quality of life. Males (43.72%) have more affected (34.01%) quality of life than females because of obesity/ increased BMI.*

## 1. Introduction

Obesity is defined as life-long, progressive, life-threatening, costly, genetically-related, multi-factorial disease of excess fat storage with multiple co-morbidities i.e. associated with health problems (1). On an individual level, obesity not only shortens life expectancy but also reduces the number of healthy and functional life-years (WHO 2000). Obesity is the most common and costly nutritional problem in the United States, affecting approximately 35 percent of adults (2). As per WHO's report in 2012 one in six adults are obese, one in 10 diabetic and one in three has raised blood pressure.(3) According to the National Family Health Survey (NFHS), the percentage of married adults aged 15-49 years who are overweight or obese increased from 11% in NFHS- 2 to 15% in NFHS-3(4). Further, obesity is associated with multiple co-morbidities such as type 2 diabetes mellitus, dyslipidemia, polycystic ovarian disease, hypertension, and the metabolic syndrome, which are increasingly becoming common among children and urban adolescents(5) The strong negative impact of obesity on physiological health has been established. However the impact of obesity on work, social functioning, activities of daily life and on sexual life has been less extensively studied, while it is generally believed that obesity has adverse effect on many areas of these function.(6). Therefore the aim & objective of the study was to see the impact of obesity on quality of life in obese individuals by IWQOL-LITE QUESTIONNAIRE in which five areas of functioning was assessed i.e. physical functioning, self esteem, sexual life, public distress & work.

## 2. Methodology

### 2.1 Criteria for Selection

#### Inclusion criteria

- Adults whose BMI value was  $\geq 29.9$  kg/m<sup>2</sup>. i.e obese according to BMI classification.
- Individuals who were married
- Adults whose age fell in the range of 25-50years
- Participants who volunteered to participate

#### Exclusive criteria

- Individuals with any Neurological, Cardio respiratory, vascular and psychological disorder
- Unwilling to participate
- Individuals who were part of other ongoing departmental research project

### 2.2 Procedure of the Study

#### Method

Every male or female, married adult whose BMI value was greater or equal to 29.9 kg/m<sup>2</sup>. i.e. obese according to BMI classification was recruited in the study by personal invitation or voluntary consent, based on satisfying inclusion & exclusion criteria. Ethical approval for the study was obtained from Institutional Ethical Committee, Shree Krishna Hospital And Research Centre, Karamsad. Prior informed written consent was obtained from each subject after explaining the details of form to be filled. 205 participants were included in the study. Convenient sampling method was applied. All the participants were assessed for their BMI by taking height and weight measurement. Participants were given the questionnaire to complete along with the consent form. Participants were given details about the procedure that the procedure was

non-invasive, non time consuming and won't have any side effects.

Male investigator took informed consent and got the questionnaire filled from male participants and female investigator took informed consent and got the questionnaire filled from female subject. Participants were entrusted for their participation in the study and their confidentiality and privacy during the study were maintained

#### Measures

- Impact of weight on quality of life questionnaire (IWQOL-LITE).
- Impact of weight on quality of life was assessed by Impact of weight on quality of life questionnaire which is most reliable and validated tool to assess it. The detail of IWQOL-LITE questionnaire were explained to all participants and questionnaire were administered (7). The IWQOL-LITE is a 31-item self reported measure that assesses quality of life in obese individuals. The measure consists of scores on five scales – physical function (11 items), self-esteem (seven items), sexual life (four items), public distress (five items), and work (four items) – and a total score (sum of scale scores). Participants will be asked to rate items with respect to the past week on this questionnaire (from 'never true' to 'always true'). Higher score indicate poor quality of life.

#### Statistics

- Unpaired t - test was used to establish normal distribution of data.
- Karl Pearson coefficient of correlation(r) was used to establish correlation of BMI with five domains of quality of life of questionnaire.

### 3. Results

Obese people have poor quality of life. In present study it was found that BMI was having direct positive relation to QOL as depicted by total score of IWQOL-LITE QUESTIONNAIRE. The most affected part in QOL was physical functioning i.e 39.86, while the correlation of BMI with physical functioning(0.75) was most. In females, the physical functioning(37.02%) was most impaired while in male sexual life(57.34%) was most impaired segment of QOL. Males have poorer QOL as compared to female because of obesity in which the most affected area was sexual life (57.34). BMI even highly correlated with self esteem (0.69). Higher the BMI, lower the self esteem.

### 4. Discussion

At the outset, total 205 participants participated out of which 155 were female and 49 were male. This disparity between males and females can be because of more prevalence of obesity in females. Garg, C, et.al in 2010 found that prevalence of obesity among Indian women as compared to male has elevated from 10.6% to 12.6% (increased by 24.52%) (9) In present study it was found that BMI is having direct positive relation to QOL as depicted by total score of IWQOL-LITE QUESTIONNAIRE. That means as BMI increases QOL decreases. Several previous studies

have shown, IWQOL-lite scores to be strongly correlated with both BMI and body weight change (9,10). The same result was found by Kolotkin RL et al in their study. They divided BMI into three categories which showed significant main effects of BMI for all five domains of IWQOL-Lite and total score ( $p < 0.001$ ). Higher BMI was associated with increased impairment. They also concluded in their study that "physical functioning(0.877) is most affected followed by self esteem(0.870), work(0.857), sexual life(0.849) & lastly public distress(0.814)" In present study it was found that the most affected part in QOL was physical functioning i.e 39.86% followed by sexual life (36.31%), public distress(35.60%), self esteem(33.89%) & lastly work(29.43%).

When we see the correlation of BMI with the individual aspects, we found that physical functioning(0.75) was most affected segment of QOL followed by self esteem(0.73), work(0.70), public distress(0.66) and lastly with sexual life(0.57) in total score of IWQOL-LITE questionnaire. The same have been proven by José G, B. Derraik, et.al in their study and concluded that progressive reduction in physical quality of life among obese middle-aged men may be associated with increased BMI. (10) In female, the physical functioning (37.02%) is most impaired while in male sexual life(57.34%) is most impaired segment of QOL. When quality of life of male and female was compared, male showed poorer QOL compared to female because of obesity. This result contradicted the findings of Palinkas LA, et.al who found that in obesity, women are more affected than males. This may be due to a stronger association between obesity and mental health in women than in men, suggesting that weight stigmatization is more likely to upset emotional health among obese women than obese men".(10,11,12) The findings of this study are more likely suggestive of weight stigmatization, and upset mental health in form of sexual life in males as compared to females. But still future study is required in form of regression analysis to find out the possible factor other than BMI which affects the QOL in obese persons.

José G. B. Derraik et.al. concluded that "physical quality of life is affected by increasing overweight levels, in the absence of overt obesity." Their study shows that overweight non-obese individuals also display impairments in physical quality of life. (10) Larsson U, Karlsson J, Sullivan M studied impact of overweight and obesity on health related quality of life and concluded that obese people have a poorer quality of life. Poor quality of life can be attributed to impairment in physical functioning, general health, mental health and body pain.

### 5. Conclusion

Thus the study concluded that-

- BMI has positive correlation with impairment in quality of life.
- Males (43.72%) have more affected quality of life than females (34.01%) because of obesity/ increased BMI.

## 6. Disclosure

- No source of funding for the above study.
- No conflict of interest

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## Tables

**Table 1:** Descriptive Table

	Total	Male	Female	P-Value
No of Participants	205	49	155	
Mean Age	39.70	39.02	39.88	0.27
Mean Height	159.96	161.09	159.57	0.0013
Mean Weight	91.63	93.22	91.15	0.1376
MEAN BMI	35.91	36.33	35.79	0.23